

Bio 3602 Course Outline

1. Course Information

Animal Physiology II, Winter 2026.

Lectures (Section 001): Mondays, Wednesdays, Fridays 10:30-11:20 AM.

- in person; students may record audio but not video or still photographs

Tutorials: In person, every 2nd week (beginning 14 Jan., see Brightspace Calendar for schedule)

Tutorial Section	Day/Time
002	Tue. 9:30-11:20 AM
003	Tue. 1:30-3:30 PM
004	Wed. 2:30-4:30 PM

List of Prerequisites

A minimum mark of 60% in Biology 2601A/B. Physiology 3120 will only be considered with special permission (see below).

Unless you have either the prerequisites for this course or written special permission from the Department of Biology to enroll in it, you may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on your academic record. This decision may not be appealed.

2. Instructor Information

Instructor and Course Co-ordinator: James Staples, Professor (jfstaple@uwo.ca), BGS 3020

Tutorial Leader: TBA

Students must use their Western (@uwo.ca) email addresses when contacting course staff, and include "Bio 3602" in the subject line.

Office Hours as needed and announced in class and on OWL, format TBD (likely by Zoom)

3. Course Syllabus, Schedule, Delivery Mode

This course, along with Biology 3601A/B (Animal Physiology I), explores the mechanisms, integration and evolution of physiological and biochemical systems within animals. By using a comparative approach, we will explore the diversity of evolutionary “strategies” adopted by phylogenetically distinct animals. We will also explore how these animals use these strategies to cope with natural selective pressures, especially in extreme environments. Human physiology will be discussed only briefly for the sake of comparison, but is not the main focus of this course.

Lecture Learning Outcomes: Successful students will achieve each of the following outcomes:

- have a working knowledge of the mechanisms and regulation of individual biochemical and physiological systems.
- understand and be able to articulate how both phylogeny and environmental selective pressures influence the evolution of biochemical and physiological systems.
- be able to integrate the function of these systems to explain the coordinated regulation of an animal’s internal environment.

Tutorial Learning Outcomes: Successful students will achieve each of the following outcomes:

- independently find primary literature and assess its quality and relevance to course topics
- make presentations of primary papers to their classmates in which they critically evaluate the papers, and emphasize data and their significance in the presentation
- lead discussions based on these papers
- use knowledge derived from reading the presented paper to contribute to the discussions led by classmates

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Important Dates

Classes begin: January 5, 2026

Spring Reading Week: February 14 – 22, 2026

Classes end: April 9, 2026

Exam period: April 12 – 30, 2026

Contingency plan

Although the intent is for this course to be delivered in person, should any university-declared emergency require some or all of the course to be delivered online, either synchronously or asynchronously, the course will adapt accordingly. The grading scheme will **not** change. Any assessments affected will be conducted online as determined by the course instructor.

4. Course Materials

Textbook (required): Hill, R.W., Wyse, G.A. & Anderson, M. (2022) Animal Physiology. 5th Edition. Sinauer, Sunderland, MA. The textbook costs \$171.35 (loose-leaf) or \$99.00 (eBook 365 day rental).

This is the version of the book you used in Biology 2601 (and 3601), so you may already own a copy. Students are welcome to purchase second-hand or earlier editions of this textbook, but I will supply reading page numbers only for the current and 4th edition (2016).

In the event that Lectures and Tutorials cannot be delivered in person students must have access to the following:

- a laptop or computer with working microphone and webcam
- a reliable internet connection

Other relevant course material will be posted to BRIGHTSPACE: <https://westernu.brightspace.com/>

Students are responsible for checking the course BRIGHTSPACE site (<https://westernu.brightspace.com/>) regularly for news and updates. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course BRIGHTSPACE site, they can seek support on the [Brightspace Help page](#). Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

- in-class quiz (date TBA, likely late Jan.).....15%
 - may include multiple choice, matching, fill-in-the-blank
 - material from lectures & readings from Lectures 1 through 10
- midterm (date TBA, likely early March).....30%
 - out of class, likely 2 hours
 - may include multiple choice, short answer, calculations, graphing
 - NOT cumulative; covers lecture and reading material from Lectures 11 through 20
 - *This is a designated assignment i.e. students cannot use undocumented academic consideration requests for absences from this midterm*

- Final Exam (date TBD by registrar).....35%
 - date/time determined by registrars office (3 hours)
 - normally short answer, essay
 - cumulative; covers material spanning all course lectures and readings (but not tutorials)
- Tutorial
 - Presentations.....10%
 - Assignments5%
 - participation5%

Use of generative AI tools (e.g., ChatGPT, Copilot, Gemini) is prohibited.

Topics covered in Bio 3602 include:

- Unifying principles – phylogeny, thermodynamics, body size effects, environmental patterns, time scales
- Gas exchange – properties of water vs. air; Fick's law of diffusion; metabolic consequences; CO₂ exchange; altitude & hypoxia adaptations.
- Circulation – evolutionary “design” of circulatory systems; flow properties and regulation; ventilation/perfusion matching.
- Digestion and Diet – comparing feeding modes; regulation of ingestion, digestion, absorption, incorporation, egestion; form & function related to diet type; metabolic and ecological consequences.
- Locomotory & Exercise Physiology – muscle physiology & biomechanics; cost of transport & its allometry; what determines/constrains exercise capacity?; training effects; recovery; selective pressures favouring sprint vs. endurance performance.
- Human Influences – physiological effects of environmental pollutants, global climate change etc.

General information about missed coursework

Students must familiarize themselves with the University Policy on Academic Consideration – Undergraduate Students in First Entry Programs posted on the Academic Calendar:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf,

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage:

https://registrar.uwo.ca/academics/academic_considerations/

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request **without supporting documentation** in this course. However, the following assessments are excluded from this, and therefore always require formal supporting documentation:

- Examinations scheduled during official examination periods (Defined by policy)
- Midterm (Designated by the instructor as the one assessment that always requires documentation when requesting Academic Consideration)

When a student misses the Final Exam and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under Special Examinations), especially for those who miss multiple final exams within one examination period.

When a student mistakenly submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those in the Coursework with Assessment Flexibility section below, the request cannot be recalled and reapplied. This privilege is forfeited.

Evaluation Scheme for Missed Assessments

In the case of approved academic consideration requests for absences (see below) from the quiz or midterm there will be no “make-up” tests. Instead, your marks will be reassigned to the final exam. Accepted academic consideration requests for absences from tutorial presentations will be made up before the end of term, as scheduled by the instructor and tutorial leader. There is no make-up for missing/late tutorial assignments, nor can you submit an assignment for a tutorial you did not attend. However, only the best 3 of the 4 assignments will be considered for the final course grade.

Essential Learning Requirements

Even when Academic Considerations are granted for missed coursework, the following are deemed essential to earn a passing grade:

1. minimum attendance at 3 tutorials with a passing (>50%) grade of corresponding assignments
2. successful completion of assigned tutorial presentation with a passing (>50%) grade

In such cases a student will be awarded a grade of 45% for the course.

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work which is clearly above average
B	70-79	Good work, meeting all requirements, and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

6. Additional Statements

6.1 Religious Accommodation

When a recognized religious holiday or observance conflicts with an examination, test, or other scheduled academic obligation, students must request accommodation via the University's Student Absence Portal (SAP). This request should identify the conflict and specify which course component(s) (e.g. test, midterm, exam) are affected.

Students are encouraged to submit the SAP request as early as possible, but no later than two weeks before any examination, or one week before any mid-term test or quiz, to allow sufficient time for adjustment.

The SAP request serves as official notification to both the course instructor and the Academic Advising Office, in accordance with University policy:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

The Faculty of Science considers religious accommodations as scheduling conflicts. Instructors should provide either a make-up exam or an earlier sitting of the same exam to accommodate the student.

For more information on recognized religious holidays, please visit the Diversity Calendar posted on the Equity, Diversity & Inclusion website - <https://www.edi.uwo.ca>

6.2 Academic Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf.

6.3 General Academic Policies

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

Use of @uwo.ca email: accordance with policy,
https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf, the centrally administered e-mail account provided to students will be considered the individual's official university email address. It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

Requests for Relief (formally known as “appeals”)

Policy on Request for Relief from Academic Decision:

https://uwo.ca/univsec//pdf/academic_policies/appeals/requests_for_relief_from_academic_decision_s.pdf

Procedures on Request for Relief from Academic Decision (Undergraduate):

https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf

[If cross-listed as a grad course] Procedures on Request for Relief from Academic Decision (Graduate):

https://uwo.ca/univsec//pdf/academic_policies/appeals/graduate_requests_for_relief_procedure.pdf

6.4 Scholastic Offences

Policy on Scholastic Offences:

https://uwo.ca/univsec//pdf/academic_policies/appeals/scholastic_offences.pdf

Procedures on Scholastic Offences (Undergraduate):

https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf

Use of Electronic Devices During Assessments

In courses offered by the Faculty of Science, the possession of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This includes, but is not limited to: mobile phones, smart watches, smart glasses, and wireless earbuds or headphones.

Unless explicitly stated otherwise in advance by the instructor, the presence of any such device at your desk, on your person, or within reach during an assessment will be treated as a scholastic offence, even if the device is not in use.

Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is your responsibility to review and comply with these expectations.

Use of Generative AI Tools

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is not permitted in the completion of any course assessments, including but not limited to: assignments, lab reports, presentations, tests, and final examinations.

Using such tools for content generation, code writing, problem solving, translation, or summarization—when not explicitly allowed—will be treated as a scholastic offence.

If the use of generative AI is permitted for a particular assessment, the conditions of use will be specified by the instructor in advance. If no such permission is granted, students must assume that use is prohibited. It is your responsibility to seek clarification before using any AI tools in academic work.

All required papers or assignments may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

6.5 Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, requests for relief, exam conflicts, and many other academic-related matters: <https://www.uwo.ca/sci/counselling/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence (GBSV) and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced GBSV (either recently or in the past), you will find information about support services for survivors, including emergency contacts, at:

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. If you have any questions regarding accommodations, you may also wish to contact Accessible Education at http://academicsupport.uwo.ca/accessible_education/index.html

Learning-skills counsellors at Learning Development and Success (<https://learning.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Additional student-run support services are offered by the USC, <https://westernusc.ca/services/>.

<https://westernusc.ca/your-services/>